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Progress Report

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6. AUTHOR(S)
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
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12a. DISTRIBUTION/AVAILABILITY STATEMENT

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13. ABSTRACT (Maximum 200 words)

This report lists publications, patents, presentations and honors relating to an ONR sponsored research grant on Mobile and Wireless Communications. The investigation develops new techniques for mobile and wireless communication systems as well as performance evaluation models and tools. Configurations that support a mixture of mobile platform types and mixed types of telecommunications traffic are emphasized. Channel assignment and cellular layout strategies are investigated and an analytical framework based on multi-dimensional birth-death processes is developed to encompass a broad range of relevant issues. Specific topics include consideration of new channel borrowing schemes, mixed satellite and terrestrial systems and methods that support platforms with differing mobilities and mixed teletraffic sources, such as data, voice and images.

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14. SUBJECT TERMS

Mobile communications, wireless communications, personal communication systems, cellular communications, traffic performances, dynamic channel assignment.

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OFFICE OF NAVAL RESEARCH
PUBLICATIONS / PATENTS / PRESENTATIONS / HONORS REPORT
for
1 January 1996 through 30 June 1996

R&T Number:
Grant Number: N00014-95-11217
Grant Title: MOBILE AND WIRELESS COMMUNICATIONS

Principal Investigator: Stephen S. Rappaport
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- | | |
|---|-----------|
| a. Number of papers submitted to refereed journals but not yet published: | <u>6</u> |
| b. Number of papers published in refereed journals: (list attached) | <u>1</u> |
| c. Number of books or chapters submitted but not yet published: | <u>0</u> |
| d. Number of books or chapters published: (list attached) | <u>0</u> |
| e. Number of printed technical reports & non-refereed papers: (list attached) | <u>2</u> |
| f. Number of patents filed: (list attached) | <u>1</u> |
| g. Number of patents granted: (list attached) | <u>0</u> |
| h. Number of invited presentations at workshops or professional society meetings. | <u>1</u> |
| i. Number of presentations at wrkshps or prof. soc. meetings. (list attached) | <u>2</u> |
| j. Honors/Awards/Prizes for Contract/Grant Employees: (List attached).
(Includes scientific soc. awards/offices, Promotions, Faculty Award/Offices). | <u>10</u> |
| k. Total number of graduate students and post-docs supported at least 25%
this year on this contract, grant: <i>graduate students</i> <u>4</u> and <i>post-docs</i> <u>0</u> | |
| grad student female | 0 |
| grad student minority | 0 |
| grad student Asian e/n | 4 |
| post-doc female | 0 |
| post-doc minority | 0 |
| post-doc Asian e/n | 0 |

PUBLICATIONS, PATENTS, PRESENTATIONS, AND HONORS REPORT**b. Papers Published in Refereed Journals**

- [1] H. Jiang and S.S. Rappaport, "Prioritized Channel Borrowing without Locking: A Channel Sharing Strategy for Cellular Communications," IEEE Trans. on Networking, April 1996, vol. 4, no. 2, pp. 163-172.

d. Books or Chapters Published**e. Technical Reports and Non-Refereed Papers**

- [1] P.V. Orlik and S.S. Rappaport, "Traffic performance modeling of cellular communication systems with mixed platforms and highly variable mobilities," CEAS Technical Report No.727, June 12, 1996, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794.
- [2] C. Purzynski and S.S. Rappaport, "A background data transmission scheme for cellular communications with fading," CEAS Technical Report No.728, June 12, 1996, College of Engineering and Applied Sciences, State University of New York, Stony Brook, NY 11794.

f. Patents Filed

- [1] S.S. Rappaport and H. Jiang, "A Channel Borrowing Scheme for Cellular Communication Systems Using Multiple Channel Carriers." Filed July 1995. Currently, pending.

g. Patents Granted**i. Presentations at Workshops and Professional Society Meetings**

- [1] H. Jiang and S.S. Rappaport, "Hybrid CBWL and Directed Retry in Cellular Communications," Proc. IEEE Vehicular Technology Conference VTC '96, Atlanta, April 28 - May 1, 1996, pp. 716-720. (with H. Jiang).
- [2] J.-L. Pan, P.M. Djuric and S.S. Rappaport, "A Simulation Model of Combined Handoff Initiation and Channel Availability in Cellular communications," Proc. IEEE Vehicular Technology Conference VTC '96, Atlanta, Atlanta, April 28 - May 1, 1996, pp. 1515-1519.

j. Honors/Awards/Prizes

S.S. Rappaport

- [1] IEEE Communications Society - Chairman, Technical Committee on Personal Communications, Oct. 1994 - Oct. 1996.
- [2] IEEE Communications Society - Awards Board.
- [3] Session Chair, VTC '96, Atlanta
- [4] Technical Program Committee, PIMRC '96 Taiwan.
- [5] Executive Committee, ICUPC '96
- [6] Technical Program Committee, ICUPC '96, Boston
- [7] Session Organizer and Chair, Globecom '96 London
- [8] Technical Program Committee, ICUPC '97 San Diego
- [9] Organizing Committee, Third International Workshop on Mobile Multi-media Communications, MoMuC-3, (Sept. 1996).
- [10] State University of New York at Stony Brook, - Faculty Senate (to present).